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1100 Boulders Parkway
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EXAMINER

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE
THE PATENT TRIAL AND APPEAL BOARD

Ex parte STEPHEN D. BRUCE
and Jeffrey A. Middlesworth

Appeal 2016-000766
Application 13/200,776¹
Technology Center 1700

Before ADRIENE LEPIANE HANLON, MARK NAGUMO, and
DEBRA L. DENNETT, *Administrative Patent Judges*.

NAGUMO, *Administrative Patent Judge*.

DECISION ON APPEAL

Stephen D. Bruce and Jeffrey A. Middlesworth (“Bruce”) timely appeal under 35 U.S.C. § 134(a) from the Final Rejection² of all pending claims 5, 7–12, and 19–31. We have jurisdiction. 35 U.S.C. § 6. We reverse.

¹ The real party in interest is identified as Tredegar Film Products. (Appeal Brief, filed 10 March 2015 (“Br.”), 2.)

² Office action mailed 9 December 2013 (“Final Rejection”; cited as “FR”).

OPINION

A. Introduction³

The subject matter on appeal relates to a method of making elastic film laminates that are used, e.g., in the manufacture of absorbent articles such as diapers “to provide desired fit characteristics to the article.”

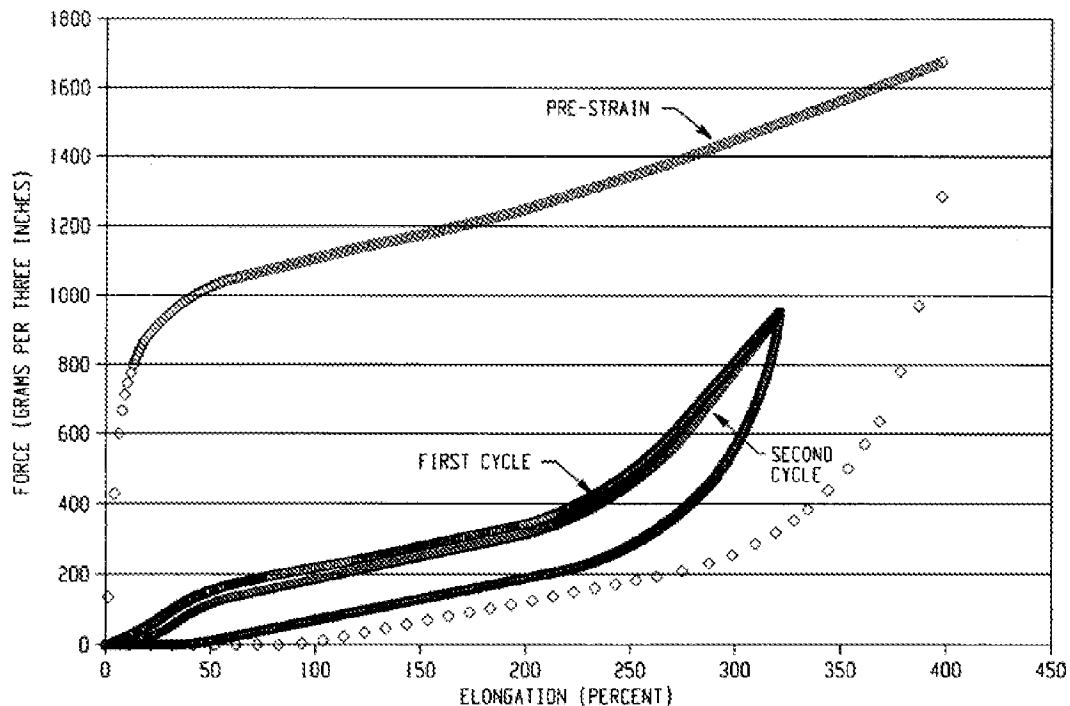
(Spec. 1 [0003].) Most methods of making laminates using elastic films are said to provide stretch in the cross direction, corresponding to the width of the web, rather than the longer machine direction of the web.

(*Id.* at 2 [0004].) Conventional methods of making machine-direction elastic laminates are said to adhere stretched elastic strands, rather than stretched elastic films, to a pair of nonwoven fibrous webs. When the stretched strands are allowed to relax, the nonwoven members gather and pucker, resulting in a bulky appearance, which is said to be objectionable for use in adult incontinence articles. (*Id.* at 2 [0005].) This problem can be ameliorated by trebling the number of elastic strands, but due to difficulties of dealing with more strands (including down-time for re-threading after breakage) the manufacturing process is said to be more complicated, less robust, and more costly. (*Id.*) Simpler and less expensive ways of providing machine-direction elasticity in elastic laminates are thus desirable.

³ Application 13/200,776, *Elastic film laminates prepared by multiple stretching steps*, filed 30 September 2011 as a division of 11/729,346, filed 28 March 2007, now abandoned, claiming the benefit of 60/790,663 (10 April 2006). We refer to the “‘776 Specification,” which we cite as “Spec.”

Bruce seeks patent protection for a method comprising stretching a specified elastic⁴ film by a draw ratio of at least 4:1 (i.e., stretched at least 300%; (*id.* at 9, l. 5)) in the machine direction, relaxing the film, perforating the film (to impart breathability; (*id.* at 8 [0028])), stretching the film a second time to an extent less than the first stretching step (again in the machine draw direction), laminating the stretched film to a substrate web, and relaxing the laminate.

As illustrated in Figure 8, reproduced below, the force required during the first extension (labeled “prestrain”) is significantly higher than during



{Figure 8 shows a graph of force versus elongation in subsequent cycles}

⁴ A material is said to be elastic if it can be stretched in at least one direction to approximately 150% of its original dimension, and that returns to no more than 125% of its original dimension when the tension is released. (Spec. 6 [0024].)

the second extension (labeled “first cycle”). However, the force required during the third (and subsequent) extension is nearly the same as that required during the second extension. (*Id.* at 14 [0046] to 15 [0049].)

This manufacturing process is said to result in improved bond strength between the film and the nonwoven web. The Specification proposes that this is due to lower recovery forces in the elastic film during the second and subsequent extensions. (*Id.* at 10 [0034].) Moreover, the lower recovery forces, which can be viewed as the force necessary to hold the film in a stretch condition, are said to be advantageous when the film is used in a cut-and-place apparatus for making diapers. (*Id.* at [0037].) Also, the laminate formed by this multiple stretch process is said to have greater elongation than a laminate made using a single stretch process. (*Id.* at [0036].)

Claim 5 is representative and reads:

A process of manufacturing a laminate, the process comprising

- providing an elastic film comprising
 - a styrene/isoprene/styrene core and
 - one or more skin layers of a polyethylene polymer;
- stretching the film in the machine direction to a 4:1 draw ratio or greater in a first stretching step;
- relaxing the film after the first stretching step;
- perforating the film after relaxing the film;
- stretching the film at least once more in the machine direction less than the draw ratio after perforating the film in a second stretching step such that
 - the film is stretched less in the second stretching step than in the first stretching step;*
- laminating the film to at least one substrate web while the film is stretched in the second stretching step to form a laminate; and

relaxing the laminate.

(Claims App., Br. 4; some indentation, paragraphing, and emphasis added.)

Remaining independent claim 24 is somewhat more detailed, but it recites the same requirement that “the film is stretched less in the second stretching step than in the first stretching step.” (Claims App., Br. 6.)

The Examiner maintains the following grounds of rejection^{5, 6}:

- A. Claims 5, 7–10, and 12 stand rejected under 35 U.S.C. § 103(a) in view of the combined teachings of McCabe,⁷ Hanschen,⁸ and optionally Turi.⁹
- A1. Claim 11 stands rejected under 35 U.S.C. § 103(a) in view of the combined teachings of McCabe, Hanschen, optionally Turi, and Bridges.¹⁰
- A2. Claim 19–28, 30, and 31 stand rejected under 35 U.S.C. § 103(a) in view of the combined teachings of

⁵ Examiner’s Answer mailed 2 January 2015 (“Ans.”).

⁶ Because this application was filed before the 16 March 2013 effective date of the America Invents Act, we refer to the pre-AIA version of the statute.

⁷ John A. McCabe et al., *Pants type product and method of making the same*, U.S. Patent No. 8,007,484 B2 (30 August 2011), based on an application filed 1 April 2005.

⁸ Thomas P. Hanschen et al., *Spatially modified elastic laminates*, U.S. Patent No. 5,344,691 (1994) [Ex parte Reexamination Certificate issued 2 February 2010.]

⁹ Mordechai Turi and Michael Kauschke, *Disposable absorbent article having elastically contractible waist and sides*, U.S. Patent No. 6,413,249 B1 (2002).

¹⁰ Russell P. Bridges et al., U.S. Patent No. 5,518,566 (1996).

McCabe, Hanschen, optionally Turi, and either admitted prior art¹¹ or Middlesworth.¹²

- A3. Claim 29 stands rejected under 35 U.S.C. § 103(a) in view of the combined teachings of McCabe, Hanschen, optionally Turi, either admitted prior art or Middlesworth, and Bridges.

B. Discussion

The Board's findings of fact throughout this Opinion are supported by a preponderance of the evidence of record.

The Examiner finds that McCabe describes a stretching and laminating process that differs from the claimed process in the identity of the elastic film.¹³ The Examiner finds further that "McCabe clearly placed no criticality on the restretching the assembly to 300% in the second stretching step," as indicated by the absence in the claims of a recitation of the amount of stretching in that step. (FR 2, ll. 10–14.) Therefore, the Examiner reasons, due to "'engineering tolerances' associated with the amount of restretch," a stretch of 295 or 299% would have been viewed as acceptable. (*Id.* at ll. 18–21.) In the absence of criticality or unexpected results (*id.* at 2, l. 21, to 3, l. 1), the Examiner "believes that McCabe satisfies the requirement that the second stretching be less than the draw ratio stretch."

¹¹ Admitted prior art, Spec. 7 [0026] (intermeshing gears stretching through nip of complementary toothed rollers).

¹² Jeffrey A. Middlesworth et al., WO 2007/061486 A1 (31 May 2007).

¹³ McCabe does not specify the structure or composition of the film. Bruce does not dispute that Hanschen describes an elastic film having a styrene-isoprene-styrene core and a polyethylene skin layer. Nor does Bruce dispute that it would have been obvious to use that film as the elastic film described by McCabe. (FR 3, ll. 19–21.)

(*Id.* at 3, ll. 1–3.) Optionally, in the alternative, the Examiner finds that Turi teaches stretching an elastic belt between 200 to 350% of its original length before adhering it to an absorbent substrate. (*Id.* at ll. 6–13.) Thus, the Examiner concludes, it would have been obvious to stretch the panels of McCabe by an amount less than 300% as suggested by Turi.

As Bruce points out (Br. 5), the Examiner does not support the argument about “engineering tolerances” with any evidence in the record. Moreover, Bruce adds, such “tolerances” would include stretches of 301% or 302%, that is, second stretches larger than in the first stretching step. (*Id.* at para. bridging 5–6.) As Bruce argues, correctly, the mere fact that the applied prior art could have been modified to meet a claim does not mean that the modification would have been obvious, absent motivation to do so. (*Id.* at 6, ll. 16–23.)

As for Turi, Bruce urges that the teachings are limited to a stretching of elastic belts, and have nothing to do with a second stretching following a first stretching. (*Id.* at 6, last para.) Turi therefore does not add to the teachings of McCabe regarding the ratio of the second stretching to the first stretching. The Examiner’s response (Ans. 14–15) does not explain how this gap is filled.

We conclude that Bruce has shown that the Examiner has not come forward with a preponderance of the evidence demonstrating a proper reason to modify McCabe to include a second stretching that is less than the first stretching. The Examiner makes no findings regarding the additional references and the additional limitations of the dependent claims that cure this fundamental defect relating to the independent claims.

Accordingly, we reverse the appealed rejections.

C. Order

It is ORDERED that the rejection of claims 5, 7–12, and 19–31 is reversed.

REVERSED